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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KENICHI MOTOYAMA and YOSHIHIRO TANI

Appeal 2010-002886
Application 10/583,557
Technology Center 1700

Before BRADLEY R. GARRIS, ADRIENE LEPIANE HANLON,
and TERRY J. OWENS, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-6 and 16-25 under 35 U.S.C. § 103(a) as

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

unpatentable over Nogami (US 5,800,926, issued Sept. 1, 1998) in view of Hayashi (US 6,800,330 B2, issued Oct. 5, 2004).

We AFFIRM.

Appellants claim a process for preparing a coating fluid, and a coating film produced using the coating fluid, wherein the coating fluid is formed in the absence of water from a reaction mixture comprising certain silicon compounds which include, for example, ureidopropyltrimethoxy silane (claim 1).

Representative claim 1 reads as follows:

1. A process for preparing a coating fluid containing a polysiloxane, which comprises:

forming a reaction mixture comprising

a silicon compound (A) of formula (1):



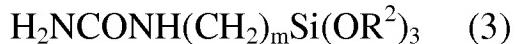
wherein R is a C₁₋₅ alkyl group,

a silicon compound (B) of formula (2):



wherein R¹ is a C₁₋₅ alkyl group, and n is an integer of from 0 to 12,

a silicon compound (C) of formula (3):



wherein R² is a C₁₋₅ alkyl group, and m is an integer of from 1 to 5,

an alcohol (D) of formula (4):



wherein R³ is a hydrogen atom or a C₁₋₁₂ alkyl group, wherein the alkyl group is optionally substituted by one or more substituents of the same or different types selected from the group consisting of a C₁₋₃ alkyl group, a C₁₋₃ hydroxyalkyl group, a C₂₋₆ alkoxyalkyl group, a C₂₋₆

hydroxyalkoxyalkyl group and a C₃₋₆ alkoxyalkoxyalkyl group, and oxalic acid (E),

wherein

- (i) the ratio of the silicon compound (B) per mol of the silicon compound (A) ranges from 0.05 to 0.43 ,
- (ii) the ratio of the silicon compound (C) per mol of the silicon compound (A) ranges from 0.01 to 0.20 mol,
- (iii) the ratio of the alcohol (D) per mol of the total alkoxy groups contained in the silicon compounds (A), (B) and (C) ranges from 0.5 to 100 mol and the ratio of the oxalic acid (E) per mol of the total alkoxy groups contained in the silicon compounds (A), (B) and (C) ranges from 0.2 to 2 mol, and

heating this reaction mixture at a temperature ranging from 40 to 180° C until the total amount of the silicon compounds (A), (B) and (C) remaining in the reaction mixture reaches at most 5 mol %, while maintaining at a SiO₂ concentration ranging from 0.5 to 10 wt % as calculated from silicon atoms in the reaction mixture and in the absence of water.

Because the rejected claims have not been separately argued by Appellants, we focus on representative claim 1 in our disposition of this appeal. The remaining claims under rejection will stand or fall with claim 1.

Nogami discloses all aspects of representative claim 1 except for the claimed silicon compound C which includes, for example, ureidopropyltrimethoxy silane. Instead, Nogami uses aminopropyltrimethoxy silane in order to improve the adhesion of the coating film to the substrate (para. bridging col. 4-5, examples 3-4). With regard to this difference, Hayashi discloses a film forming composition which may include aminopropyltrimethoxy silane or ureidopropyltrimethoxy

silane as a silane coupling agent (para. bridging col. 14-15). The Examiner expressly finds that silane coupling agents were known (i.e., at the time of Appellants' invention) to promote adhesion of organo-functional silanes (e.g., the coatings of Nogami or Hayashi) to substrates (Ans. 6).

These findings of fact have not been disputed by Appellants in the record of this appeal (e.g., *see* Reply Br. para. bridging 3-4).

Based on these undisputed findings, we agree with the Examiner that it would have been *prima facie* obvious for one with ordinary skill in this art to substitute a ureidopropyltrimethoxy silane for the aminopropyltrimethoxy silane of Nogami in view of Hayashi's teaching that these two compounds were known in the prior art as silane coupling agents. The artisan would have made this substitution in order to promote adhesion, as desired by Nogami, with a silane coupling agent (i.e., ureidopropyltrimethoxy silane) known in the prior art to possess an adhesion promoting function.

Appellants argue that the above-discussed substitution would not have been obvious because the processes and products of Nogami differ from those of Hayashi (e.g., the process of Nogami is anhydrous whereas the process of Hayashi is not) (App. Br. 10-12).

However, the record contains no evidence that, or even a specific explanation why, an artisan would not have reasonably expected the ureidopropyltrimethoxy silane of Hayashi to perform its adhesion promoting function for the coating of Nogami. For this reason, the argument under consideration is not persuasive.

Appellants also argue that the applied prior art would not have suggested using ureidopropyltrimethoxy silane for obtaining the improved coating hardness shown by their invention (App. Br. 13-14; Reply Br. para.

bridging 3-4). In this regard, Appellants state that Specification Tables 1 and 3 show that inventive coating fluids L₁-L₅ which contain ureidopropyltrimethoxy silane possess improved abrasion resistance and therefore hardness compared to coating fluid L₆ which contains aminopropyltrimethoxy silane (App. Br. 13; Spec. 32-33).

This argument is unpersuasive for a number of reasons.

First, contrary to Appellants' belief, the motivation in the prior art to combine references does not have to be identical to that of an applicant in order to establish obviousness. *In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996). Second, as correctly indicated by the Examiner (Ans. 7), Appellants' evidence of improved abrasion resistance/hardness is inconclusive. For example, Table 1 shows the same abrasion resistance value of D for inventive coating fluids L₂, L₅ as well as for comparison coating fluid L₆. Finally, concerning the question of whether the hardness property of Appellants' coating is evidence of nonobviousness, Appellants do not explain in this record why the data of Specification Tables 1 and 3 are considered to evince results which are unexpected and commensurate in scope with representative claim 1.

For the above stated reasons, we sustain the Examiner's § 103 rejection of all appealed claims as unpatentable over Nogami in view of Hayashi.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

AFFIRMED

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